

Table 4-1. Summary of remediation modules for the LLNL Site 300 Site-Wide Feasibility Study.

Building 834 (OU 2)	Pit 6 (OU 3)	HE Process Area (OU 4)	Landfill Pit 7 Complex (OU 5)	Building 850 Firing Table (OU 5)	Landfill Pit 2 (OU 5)
Module A: No further action Module B: Monitoring Module C: Risk and hazard management Module D: Ground water and soil vapor extraction and treatment of VOCs, TBOS/TKEBS, and nitrate Module E: Enhanced <i>in situ</i> bioremediation of VOCs	Module A: No further action Module B: Monitoring Module C: Risk and hazard management Module D: Monitored natural attenuation of VOCs and tritium in ground water Module E: Ground water extraction and treatment of VOCs and perchlorate	Module A: No further action Module B: Monitoring Module C: Risk and hazard management Module D: Contaminant migration control by ground water extraction and treatment of VOCs and nitrate at the leading edge of the Building 815 TCE plume Module E: Ground water extraction and treatment of VOCs, HE compounds, nitrate, and perchlorate released from Building 815 and the high explosives rinsewater lagoons Module F: Ground water extraction and treatment of VOCs, nitrate, and perchlorate released from the HE Burn Pit	Module A: No further action Module B: Monitoring Module C: Risk and hazard management Module D: Monitored natural attenuation of tritium in ground water Module E: Ground water extraction and treatment of VOCs Module F: Ground water extraction and treatment of uranium and nitrate Module G: Control migration of uranium-238 in ground water using <i>in situ</i> reactive permeable barriers Module H: Waste characterization with contingent monitoring, capping, or excavation of Landfill Pits 3 and 5	Module A: No further action Module B: Monitoring Module C: Risk and hazard management Module D: Monitored natural attenuation of tritium in ground water and surface water Module E: Ground water extraction and treatment of uranium and nitrate Module F: Control migration of uranium-238 in ground water using <i>in situ</i> reactive permeable barriers Module G: Excavation of contaminated soil and bedrock underlying the Building 850 firing table, removal of the contaminated sandpile, and removal of contaminated soil adjacent to the firing table	Module A: No further action Module B: Monitoring Module C: Waste characterization with contingent monitoring, capping, or excavation of Landfill Pit 2

Building 854 (OU 6)	Building 832 Canyon (OU 7)	Building 801, Landfill Pit 8 (OU 8)	Building 833 (OU 8)	B845 Firing Table, Pit 9 (OU 8)	Building 851 Firing Table (OU 8)
Module A: No further action Module B: Monitoring Module C: Risk and hazard management Module D: Ground water and soil vapor extraction and treatment of VOCs and nitrate	Module A: No further action Module B: Monitoring Module C: Risk and hazard management Module D: Ground water and soil vapor extraction and treatment of VOCs, perchlorate, and nitrate at Building 832 Module E: Ground water and soil vapor extraction and treatment of VOCs, perchlorate, and nitrate at Building 830 Module F: Downgradient ground water extraction using a siphon with <i>ex situ</i> treatment of VOCs by iron filings	Module A: No further action Module B: Monitoring Module C: Waste characterization with contingent monitoring, capping, or excavation of Landfill Pit 8	Module A: No further action Module B: Monitoring Module C: Risk and hazard management Module D: Ground water and soil vapor extraction and treatment of VOCs	Module A: No further action Module B: Monitoring Module C: Waste characterization with contingent monitoring, capping, or excavation of Landfill Pit 9	Module A: No further action Module B: Monitoring Module C: Ground water extraction and treatment of uranium

Table 4-2. Remediation modules for all contaminants of concern.

Contaminant	Surface soil	Subsurface soil	Ground water	Surface water
<i>Building 834</i>				
VOCs		Risk and hazard management (C) Soil vapor extraction (D)	Monitoring (B) Risk and hazard management (C) Ground water extraction (D) In situ bioremediation (E)	
TBOS/TKEBS			Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	
Nitrate			Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	
<i>Landfill Pit 6</i>				
VOCs			Monitoring (B) Risk and hazard management (C) Monitored natural attenuation (D) Ground water extraction (E)	Monitoring (B) Risk and hazard management (C)
Tritium			Monitored natural attenuation (D)	
Nitrate			Monitoring (B)	
Perchlorate			Monitoring (B) Ground water extraction (E)	
<i>HEPA Building 815</i>				
VOCs		Risk and hazard management (C)	Monitoring (B) Risk and hazard management (C) Ground water extraction (D, E)	Monitoring (B) Risk and hazard management (C)
Carbon disulfide			Monitoring (B) Risk and hazard management (C)	
<i>HE Rinsewater Lagoons</i>				
VOCs		No further action (A)		
RDX, HMX, 4-Amino-2,6-dinitrotoluene	No further action (A)	No further action (A)	Monitoring (B) Risk and hazard management (C) Ground water extraction (E)	
Nitrate			Monitoring (B) Risk and hazard management (C) Ground water extraction (E)	
Perchlorate			Monitoring (B) Risk and hazard management (C) Ground water extraction (E)	
<i>HE Burn Pits</i>				
VOCs		No further action (A)	Monitoring (B) Risk and hazard management (C) Ground water extraction (F)	
RDX, HMX		No further action (A)		
Nitrate			Monitoring (B) Risk and hazard management (C) Ground water extraction (F)	
Perchlorate			Monitoring (B) Risk and hazard management (C) Ground water extraction (F)	
<i>Landfill Pit 7 Complex</i>				
VOCs			Monitoring (B) Risk and hazard management (C) Ground water extraction (E)	
Nitrate			Monitoring (B) Ground water extraction (F)	
Perchlorate			Monitoring (B) Risk and hazard management (C) Ground water extraction (F)	
Tritium	No further action (A)	Risk and hazard management (C) Landfill monitoring, capping, or excavation (H)	Monitored natural attenuation (D)	
Uranium-238	No further action (A)	Reactive permeable barrier (G) Landfill monitoring, capping, or excavation (H)	Monitoring (B) Risk and hazard management (C) Ground water extraction (F) Reactive permeable barrier (G)	
<i>Building 850 Firing Table</i>				
Metals	Surface soil removal (G)			
HMX	Surface soil removal (G)			
Nitrate			Monitoring (B) Risk and hazard management (C) Ground water extraction (E)	

Table 4-2. Remediation modules for all contaminants of concern. (Cont. Page 2 of 2)

Contaminant	Surface soil	Subsurface soil	Ground water	Surface water
Building 850 Firing Table (cont.)				
PCBs	Risk and hazard management (C) Surface soil removal (G)			
Tritium		Firing table excavation (G)	Monitoring (B) Risk and hazard management (C) Monitored natural attenuation (D)	Monitored natural attenuation (D)
Uranium-238	Surface soil removal (G)	Firing table excavation (G)	Monitoring (B) Risk and hazard management (C) Ground water extraction (E) Reactive permeable barrier (F)	

Building 854 OU				
VOCs		Risk and hazard management (C) Soil vapor extraction (D)	Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	
Metals	No further action (A)			
Nitrate			Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	
PCBs	Risk and hazard management (C)			
HMX	No further action (A)			
Perchlorate			Monitoring (B) Risk and hazard management (C)	
Tritium	No further action (A)		Monitoring (B)	
Uranium-238			Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	

Building 830				
VOCs		Risk and hazard management (C) Soil vapor extraction (E)	Monitoring (B) Risk and hazard management (C) Ground water extraction (E, F)	Monitoring (B) Risk and hazard management (C)
Nitrate		No further action (A)	Monitoring (B) Risk and hazard management (C) Ground water extraction (E, F)	
HMX	No further action (A)			
Perchlorate			Monitoring (B) Risk and hazard management (C) Ground water extraction (E)	

Building 832				
VOCs		Soil vapor extraction (D)	Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	
Nitrate		No further action (A)	Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	
HMX		No further action (A)		
Perchlorate			Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	

Building 801, Landfill Pit 8				
VOCs		No further action (A)	Monitoring (B)	
Nitrate			Monitoring (B)	

Building 833				
VOCs		Risk and hazard management (C) Soil vapor extraction (D)	Monitoring (B) Risk and hazard management (C) Ground water extraction (D)	

Building 845 Firing Table, Landfill Pit 9				
HMX		No further action (A) Landfill monitoring, capping, or excavation (C)		
Uranium-238		No further action (A) Landfill monitoring, capping, or excavation (C)		

Building 851 Firing Table				
VOCs		No further action (A)	Monitoring (B)	
RDX	No further action (A)			
Metals	No further action (A)			
Uranium-238	No further action (A)	No further action (A)	Monitoring (B) Ground water extraction (C)	